FIG. 1

102A
EXISTING XML SCHEMA

104A
EXISTING DATABASE TABLES

106A
EXISTING INSTANCE DOCUMENTS

102B
EXISTING XML SCHEMA

104B
EXISTING DATABASE TABLES
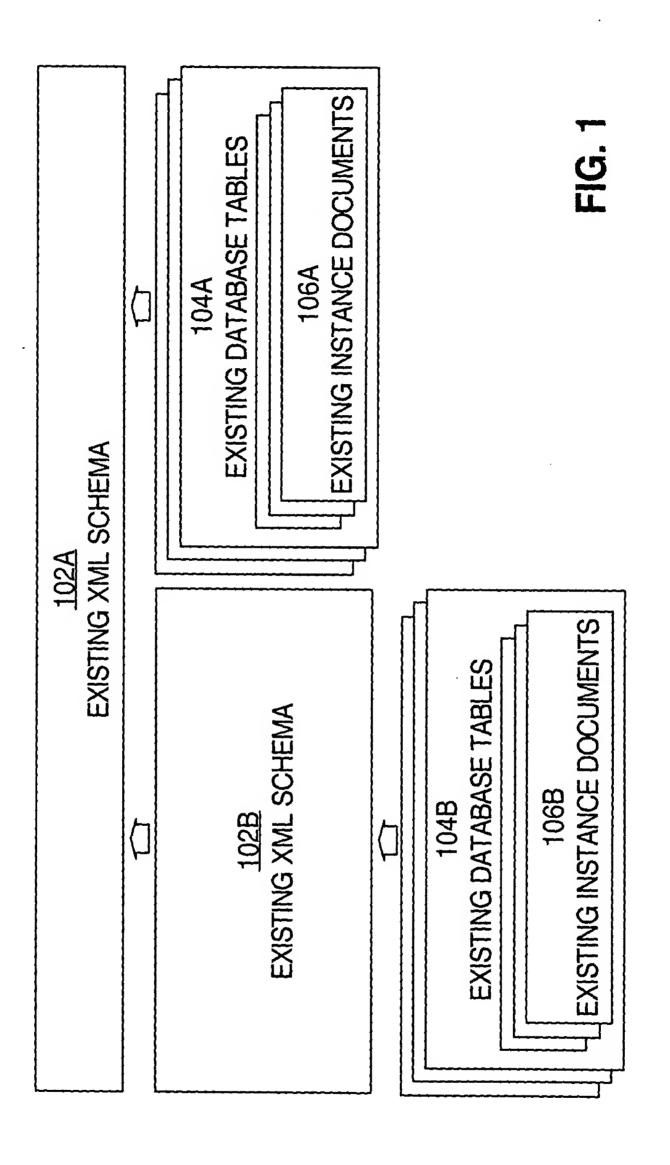
106B
EXISTING INSTANCE DOCUMENTS

Title: Mechanism To Enable Evolving XML Schema
Inventor(s): Sam Idicula, et al.
Date: August 25, 2003
Docket No: 50277-2238

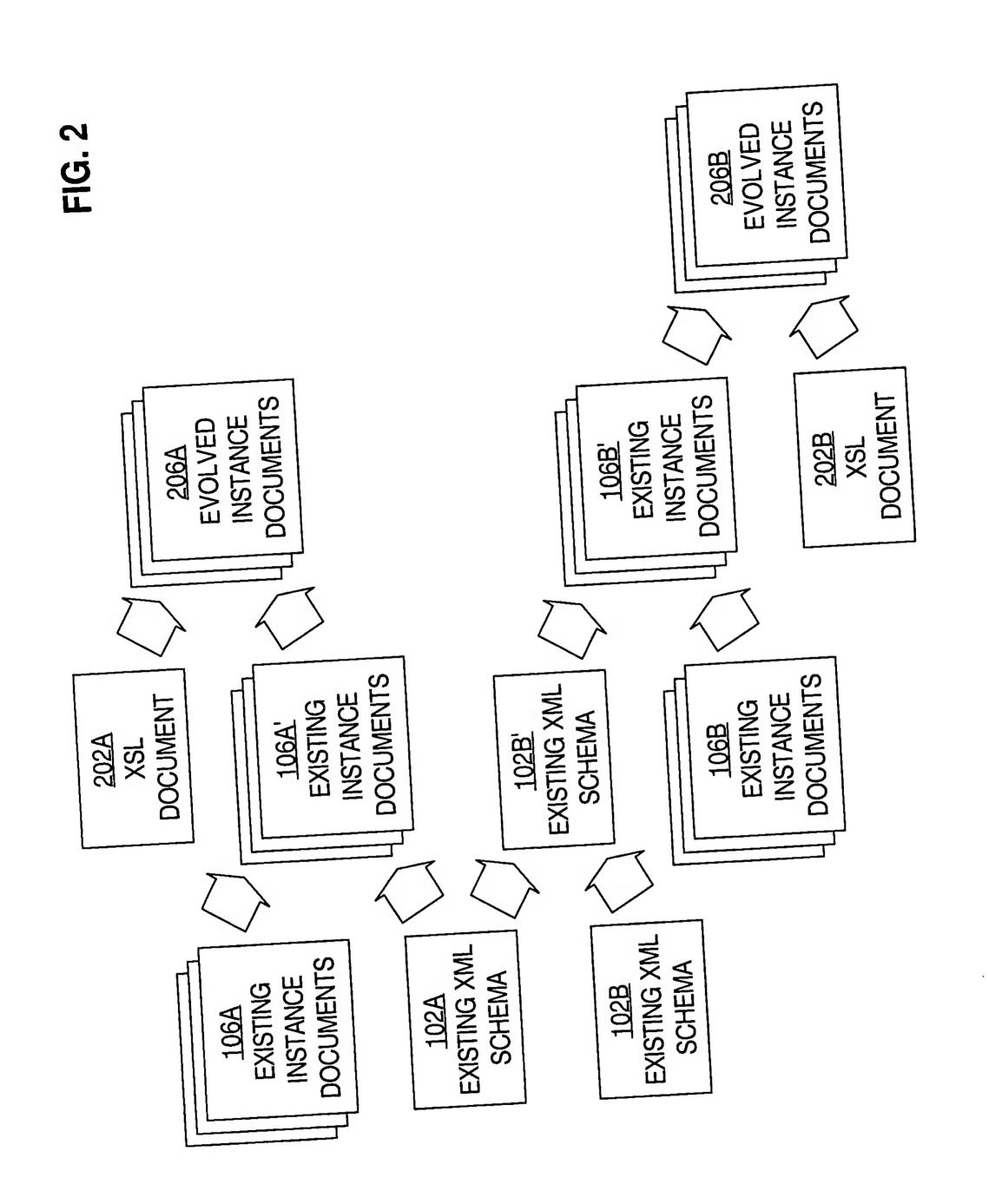Express Mail No. EV322192447US
Sheet 2 of 6

FIG. 2

206B
EVOLVED
INSTANCE
DOCUMENTS

206A
EVOLVED
INSTANCE
DOCUMENTS

106B'
EXISTING
INSTANCE
DOCUMENTS

202B
XSL
DOCUMENT

202A
XSL
DOCUMENT

106A'
EXISTING
INSTANCE
DOCUMENTS

102B'
EXISTING XML
SCHEMA

106B
EXISTING
INSTANCE
DOCUMENTS

106A
EXISTING
INSTANCE
DOCUMENTS

102A
EXISTING XML
SCHEMA

102B
EXISTING XML
SCHEMA

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Express Mail No. EV322192447US
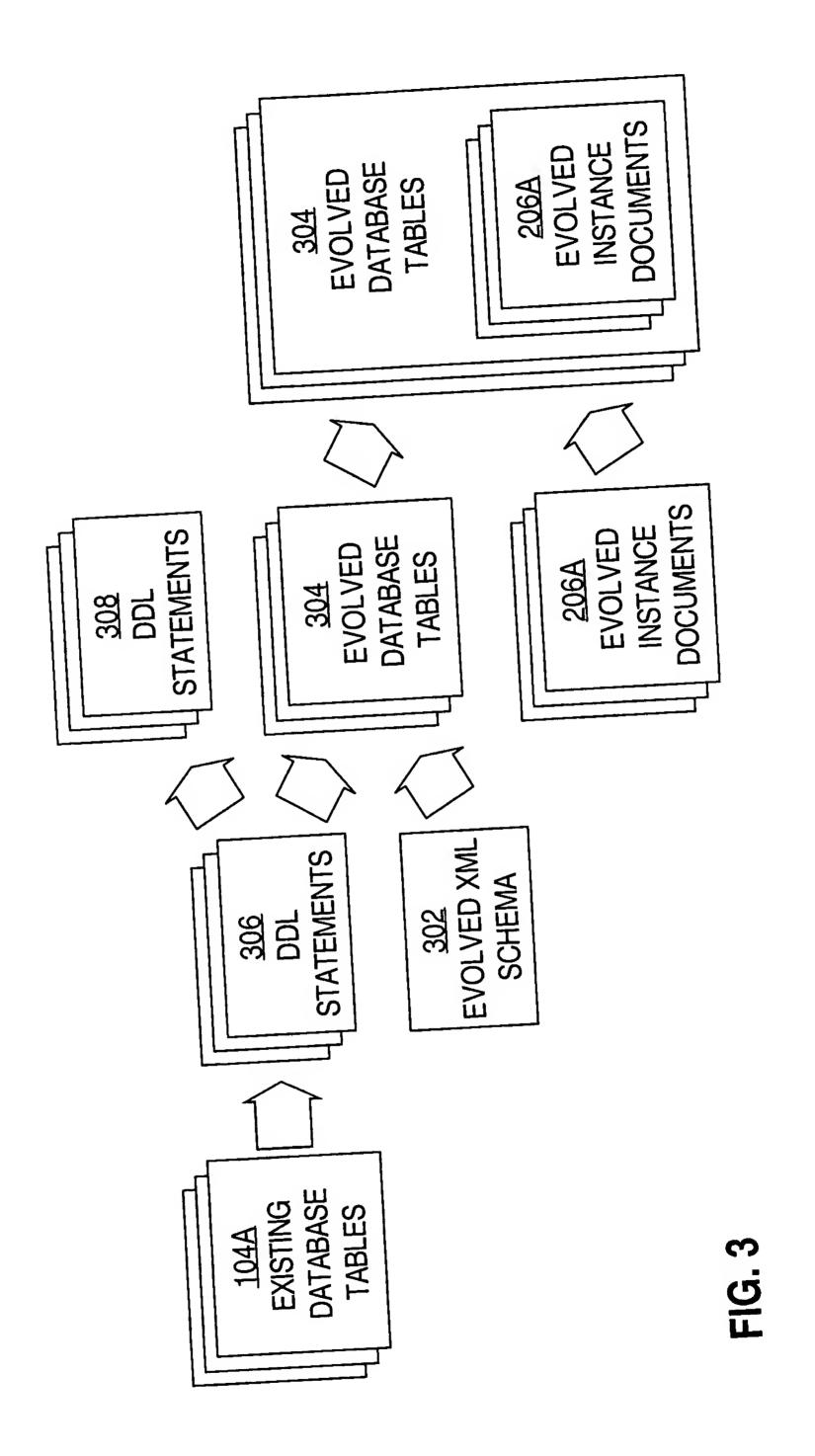Sheet 3 of 6

304
EVOLVED DATABASE TABLES

206A
EVOLVED INSTANCE DOCUMENTS

308
DDL STATEMENTS

304
EVOLVED DATABASE TABLES

206A
EVOLVED INSTANCE DOCUMENTS

306
DDL STATEMENTS

302
EVOLVED XML SCHEMA

104A
EXISTING DATABASE TABLES

FIG. 3

400 —

402
RECEIVE IDENTITIES OF EXISTING XML SCHEMAS, IDENTITIES OF EVOLVED XML SCHEMAS, AND REFERENCES TO SETS OF TRANSFORMATIONS

404
IDENTIFY SUBORDINATE XML SCHEMAS

406
CHANGE SUBORDINATE XML SCHEMAS INTO NON-SUBORDINATE XML SCHEMAS

408
IDENTIFY CONTENT MANAGEMENT SYSTEM STRUCTURES THAT DEPEND ON THE EXISTING XML SCHEMAS

410
READ EXISTING INSTANCE DOCUMENTS FROM THE CONTENT MANAGEMENT SYSTEM STRUCTURES

412
GENERATE XML-SCHEMA-INDEPENDENT INSTANCE DOCUMENTS BASED ON THE EXISTING XML SCHEMAS AND THE EXISTING INSTANCE DOCUMENTS

414
GENERATE EVOLVED INSTANCE DOCUMENTS BASED ON THE XML-SCHEMA-INDEPENDENT INSTANCE DOCUMENTS AND THE SETS OF TRANSFORMATIONS
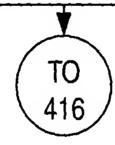
TO
416

FIG. 4A

FIG. 4B

FROM
414

400

416
GENERATE "EVOLVE" DDL STATEMENTS

418
GENERATE CORRESPONDING "ROLLBACK" DDL STATEMENTS

420
DELETE THE EXISTING XML SCHEMAS

422
DROP THE IDENTIFIED CONTENT MANAGEMENT SYSTEM STRUCTURES

424
REGISTER THE EVOLVED XML SCHEMAS

426
EXECUTE "EVOLVE" DDL STATEMENTS, THEREBY CREATING EVOLVED
CONTENT MANAGEMENT SYSTEM STRUCTURES

428
HAS AN ERROR OCCURRED WITH REGARD
TO THE EXECUTION OF THE "EVOLVE" DDL
STATEMENTS?   YES

NO

430
POPULATE THE EVOLVED CONTENT MANAGEMENT SYSTEM STRUCTURES
WITH VALUES INDICATED IN THE EVOLVED INSTANCE DOCUMENTS

432
EXECUTES AS MANY OF THE "ROLLBACK" DDL STATEMENTS AS ARE
NECESSARY TO REVERSE THE EFFECTS OF THE ALREADY EXECUTED
"EVOLVE" DDL STATEMENTS

FIG. 5